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P5.1067 Observation of drift effects on W7-X divertor heat and particle fluxes

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See full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/P5.1067.pdf

Particle drifts are known to affect the fluxes of heat and particles to plasma-facing components of both tokamaks and stellarators. Here we present results from the first dedicated study of edge drift effects in W7-X scrape-off layer plasmas. In these experiments, similar discharges were repeated with forward and reversed magnetic field in order to isolate the effects of drifts that would reverse in response to a field reversal. We find that drifts are responsible for asymmetric distributions of heat flux on upper and lower divertor targets, driving radial discrepancies of 3 cm or more in the positions of the strike lines. Up-down asymmetries are also observed in downstream temperature, particle flux, and net current flow through the targets, each with different characteristic distributions and degrees of asymmetry. Furthermore, the nature of the asymmetries is observed to change substantially with core plasma density. Overall, for the magnetic configuration tested, we have found that almost all of the up-down asymmetry can be attributed to drift effects.

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